NETWORK MANAGEMENT EQUIPMENT

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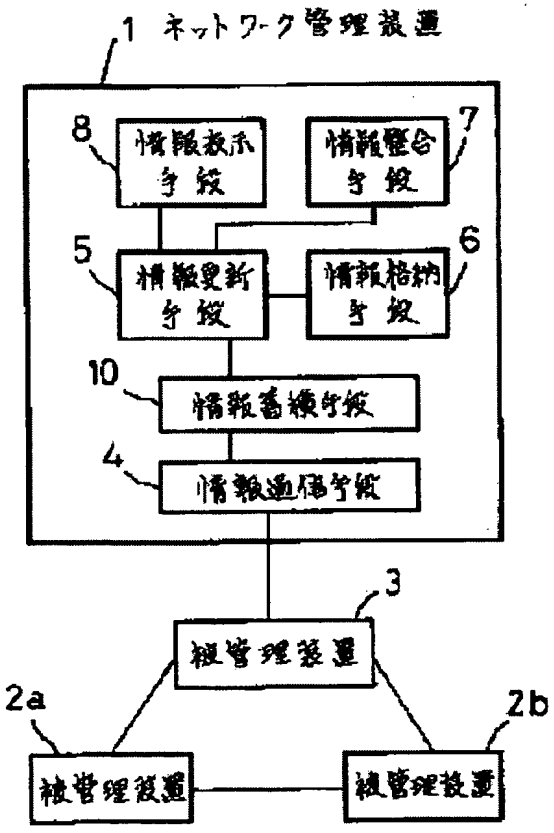
Abstract of **JP9162863**

PROBLEM TO BE SOLVED: To manage status information of managed equipments without missing status information of the managed equipment when the management equipment matches the status information of the managed equipments. SOLUTION: Status information of managed equipments 2a, 2b, 3 is given to an information communication means 4 in the management equipment 1 and stored in an information storage means 6 via an information storage means 10 and an information update means 5 is used to update a display content of an information display means 8 and the management information in the information storage means 6. When the management equipment 1 is started and the communication among the managed equipment 2a, 2b, 3 is initialized, the status information is matched. An information matching means 7 reports start and end of matching processing and a managed equipment for the matching processing to the information storage means 10. The information matching means 7 reflects the current status information acquired from the managed equipment as the matching processing. All the status information from the start of the matching processing to the end is stored sequentially in the information storage means 10. After the end of matching processing, the stored status information is sequentially fed to the information update means 5 for update processing to reflect the stored status information on the update processing.



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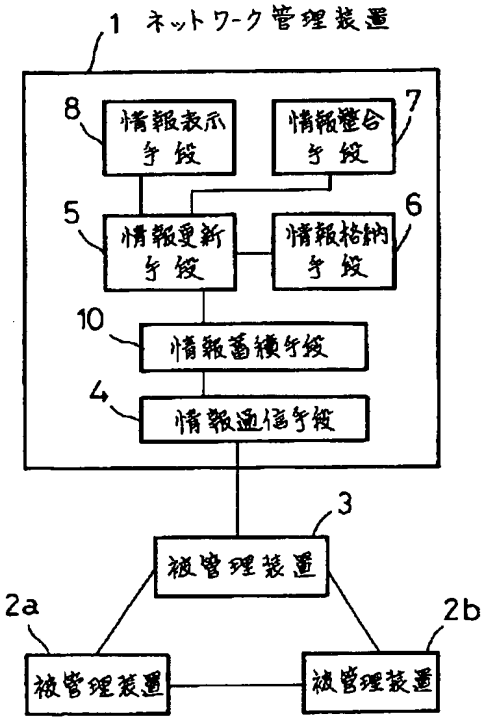
(54)【発明の名称】ネットワーク管理装置

(57)【要約】

【課題】　管理装置が被管理装置の状態情報の整合を行う際に、被管理装置の状態情報が抜けることなく管理される。

【解決手段】　被管理装置２a，２b，３の状態情報は管理装置１内の情報通信手段４から情報蓄積手段10を経て、情報更新手段５で情報格納手段６の管理情報および情報表示手段８の表示内容を更新する。管理装置１の起動時、被管理装置２a，２b，３間の通信初期化時には、状態情報の整合を行う。情報整合手段７は情報蓄積手段10に対し整合処理の開始と終了および整合処理を行う被管理装置を通知する。情報整合手段７は整合処理として被管理装置から取得した現在の状態情報を反映させる。整合処理の開始から終了までの間の全ての状態情報を情報蓄積手段10に順番に蓄積する。整合処理終了後、保持していた状態情報を反映させるため順番に情報更新手段５へ送り各更新処理を行う。



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【特許請求の範囲】

【請求項１】　複数の被管理装置で同一ネットワークを構成するとともに、その中の１つを代表の被管理装置として選択的に特定し、前記代表の被管理装置に接続され、前記代表の被管理装置からの状態変化の情報を蓄積し、該情報が抜けることなく反映されるようにしたことを特徴とするネットワーク管理装置。

【請求項２】　複数の被管理装置で同一ネットワークを構成するとともに、その中の１つを代表の被管理装置として選択的に特定し、前記代表の被管理装置に接続されるネットワーク管理装置において、管理している前記代表の被管理装置との状態情報の通信を行う情報通信手段と、前記状態情報を蓄積する情報蓄積手段と、前記被管理装置の各種状態変化の状態情報を受付け管理情報の更新を行う情報更新手段と、前記被管理装置の状態情報，構成情報からなる前記管理情報を格納する情報格納手段と、該情報格納手段に格納されている前記管理情報と実際の状態情報の整合を行う情報整合手段と、マンマシンインターフェイス上に前記被管理装置の各種状態を表示する情報表示手段とを備え、前記情報整合手段の整合処理中に前記情報蓄積手段に蓄積した状態情報を整合処理終了後に反映させるようにしたことを特徴とするネットワーク管理装置。

【発明の詳細な説明】

【０００１】

【発明の属する技術分野】本発明は、複数の被管理装置で構成される同一ネットワークにおける被管理装置の状態変化の情報を管理するネットワーク管理装置に関するものである。

【０００２】

【従来の技術】従来のこの種のネットワーク管理装置は、１地点からのネットワーク全体を管理することを目的としており、ネットワーク内の障害情報等の状態変化を検出し、表示する機能を備えている。図２は従来のネットワーク管理装置の構成を示すブロック図である。図２において、１はネットワークの状態変化の情報を管理するネットワーク管理装置(以下、管理装置という)、２a，２bはネットワークを構成する被管理装置、３は管理装置１が接続される被管理装置、４は被管理装置３との通信を行う情報通信手段、５は、被管理装置の各種状態変化の状態情報を受付けるとともに、それの更新を行う情報更新手段、６は被管理装置の状態情報や構成情報からなる管理情報を格納する情報格納手段、７は情報格納手段６の管理情報と実際の被管理装置の状態情報との整合を行う情報整合手段、８は被管理装置の各種状態を表示する情報表示手段である。

【０００３】いま、被管理装置２aで障害が発生した場合を例として説明すると、被管理装置３が被管理装置２a，２bの状態情報を定期的に各被管理装置毎に収集し、収集した状態情報を管理装置１に順番に送ることから、

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被管理装置２aの状態が変化したことを示す状態情報は管理装置１に送られることになる。このとき、被管理装置３自身の状態情報も管理装置１に送られる。管理装置１では、この状態情報を管理装置１内の情報通信手段４で受けて、それを情報更新手段５に送る。情報更新手段５は情報格納手段６の管理情報を更新した後、情報表示手段８に状態変化の情報を送る。情報表示手段８は送られた状態変化の情報に従ってマンマシンインターフェイス上の表示内容を更新する動作を行う。これによってネットワークの状態変化が管理装置１に反映される。

【０００４】また、管理装置１の起動時、および管理装置１と被管理装置３及び管理装置１と被管理装置２a，２b間の通信初期化時には、情報格納手段６の管理情報と被管理装置３、または被管理装置２a，２bの状態情報の整合を行うために、情報整合手段７より被管理装置３に対し、被管理装置３が被管理装置２a，２bに定期的に行う状態情報の収集動作を停止させる。情報整合手段７が被管理装置３または被管理装置２a，２bの現在の状態情報を取得して整合処理が終了し状態情報が反映された後に、再度情報整合手段７より被管理装置３の定期的な情報収集の動作を開始させる。

【０００５】被管理装置３または被管理装置２a，２bからの状態情報を管理装置１は、情報整合手段７によって整合され情報格納手段６に格納された管理情報を基準にして、ネットワークの状態変化を反映するように動作する。

【０００６】

【発明が解決しようとする課題】しかしながら、このような構成のネットワーク管理装置は、管理装置が接続された被管理装置、またはネットワークを構成する他の被管理装置の状態情報の整合を行う際に、被管理装置が行う定期的な情報収集を停止して整合処理が終了し状態情報の取得を開始するまでの間、被管理装置の状態情報は管理装置には送ることができないという問題があった。

【０００７】本発明は、前記従来技術の問題点を解決するものであり、管理装置が被管理装置の状態情報の整合を行う際に、被管理装置の状態情報が抜けることなく管理装置で管理することができる、優れたネットワーク管理装置を提供することを目的とする。

【０００８】

【課題を解決するための手段】この目的を達成するために、本発明に係るネットワーク管理装置は、管理している代表の被管理装置との間で状態情報の通信を行う情報通信手段と、状態情報を蓄積する情報蓄積手段と、被管理装置の各種状態変化の状態情報を受付け管理情報の更新を行う情報更新手段と、被管理装置の状態情報，構成情報からなる管理情報を格納する情報格納手段と、情報格納手段に格納されている管理情報と実際の状態情報の整合を行う情報整合手段と、マンマシンインターフェイス上に被管理装置の各種状態を表示する情報表示手段と

から構成したものである。

【０００９】前記構成によれば、情報整合手段が情報蓄積手段に対して、整合処理の開始と終了時にその旨と整合処理対象の被管理装置を通知し、情報蓄積手段では整合処理中に整合処理対象の被管理装置の状態情報を全て蓄積し、整合処理終了後に蓄積した状態情報を順番に情報更新手段に対して送り、管理情報を更新してさらに情報表示手段に送る。

【００１０】

【発明の実施の形態】以下、図面を参照して本発明の実施の形態を詳細に説明する。図１は、本発明の一実施の形態におけるネットワーク管理装置の構成を示すブロック図である。また、従来例の図２で説明した同一の作用効果のものには同一の符号を付す。図１において、１は管理装置(ネットワーク管理装置)、２a，２b，３はそれぞれ被管理装置であって、特に３は代表の管理装置、４は情報通信手段、５は情報更新手段、６は情報格納手段、７は情報整合手段、８は情報表示手段、10は情報通信手段４からの状態情報を蓄積する情報蓄積手段である。

【００１１】次に、前記のように構成される実施の形態において、まず、被管理装置２a，２b，３の何れかで障害が発生した場合、その状態情報は従来例と同様に代表の被管理装置３によって収集され、管理装置１内の情報通信手段４に送られる。情報通信手段４はこれを情報蓄積手段10に送る。情報蓄積手段10は、通常の動作として、情報通信手段４より送られた状態情報をそのまま情報更新手段５に送る。情報更新手段５は状態情報から情報格納手段６の管理情報を更新した後、情報表示手段８に状態変化の情報を送り、情報表示手段８は送られた状態変化の情報に従ってマンマシンインターフェイス上の表示内容を更新する動作を行う。これによってネットワークの状態変化が管理装置１に反映される。

【００１２】また、管理装置１の起動時、および管理装置１と代表の被管理装置３及び管理装置１と被管理装置２a，２b間の通信初期化時には、情報格納手段６の管理情報と代表の被管理装置３、または被管理装置２a，２bの状態情報の整合を行うために、情報整合手段７より情報蓄積手段10に対して、これから整合処理を行うべき被管理装置を通知する。情報整合手段７は、整合処理を行うべき被管理装置からの現在の状態情報を取得し、情報更新手段５を通して状態情報を反映させた後に、情報蓄積手段10に前回通知した被管理装置の整合処理が終了したことを通知する。さらに、情報表示手段８はこの整合処理の終了後の管理情報に従って表示の更新を行う。

【００１３】情報蓄積手段10では、被管理装置の整合処理の開始が通知されてから、その整合処理が終了するまでの間、代表の被管理装置３から送られる状態情報の中で整合処理の対象となる被管理装置からの全ての状態情報を順番に蓄積し、情報更新手段５への送りを行わない。そして、情報整合手段７からの整合処理の終了通知を受けた後、保持していた状態情報を順番に情報更新手段５へ送り、情報格納手段６の管理情報の更新及び情報表示手段８の更新を行う。

【００１４】整合処理中に被管理装置の現在の状態情報がどのタイミングで変化しても、その前後で発生した状態情報を整合処理中の状態情報に対し順番に反映させていけば、反映が完了した後の管理装置１内で管理する状態情報と実際の被管理装置の状態情報は等しくなる。

【００１５】このように前記実施の形態によれば、管理装置１内に被管理装置からの状態情報を保持する機能を設け、管理装置１における被管理装置の状態情報の整合処理中に情報蓄積手段10を動作させることにより、１台の管理装置で整合処理を行う際に、被管理装置からの整合処理中の状態情報が抜けることなく正しく管理でき、管理装置１の管理する状態情報と実際の被管理装置の状態情報の一致性を保つことができる。

【００１６】

【発明の効果】以上説明したように、本発明によれば、管理装置と被管理装置の状態情報の整合処理を行う際に、整合処理中に発生した被管理装置の状態情報が抜けることなく、管理装置と被管理装置両者の状態情報の一致性を保つことができるという効果を奏する。

【図面の簡単な説明】

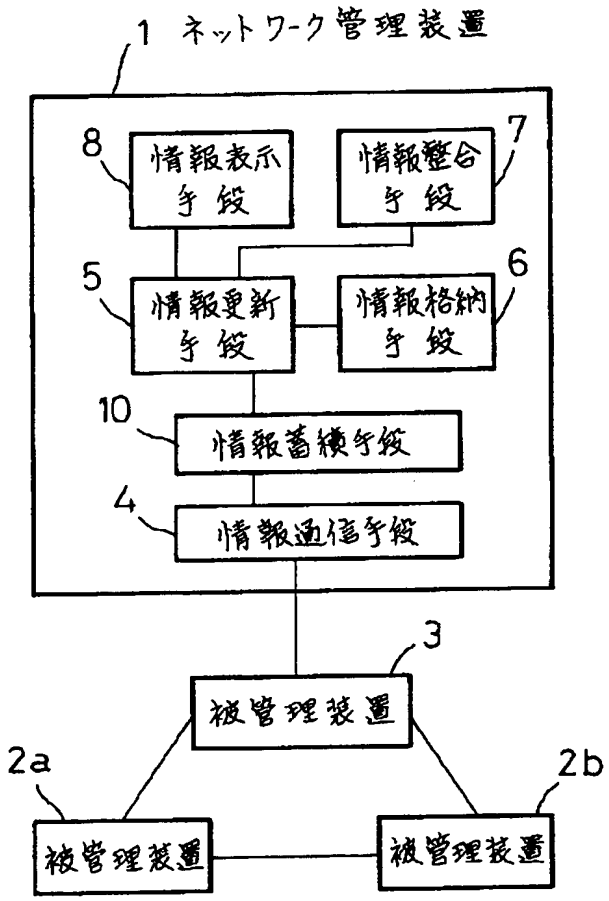
【図１】本発明の一実施の形態におけるネットワーク管理装置の構成を示すブロック図である。

【図２】従来のネットワーク管理装置の構成を示すブロック図である。

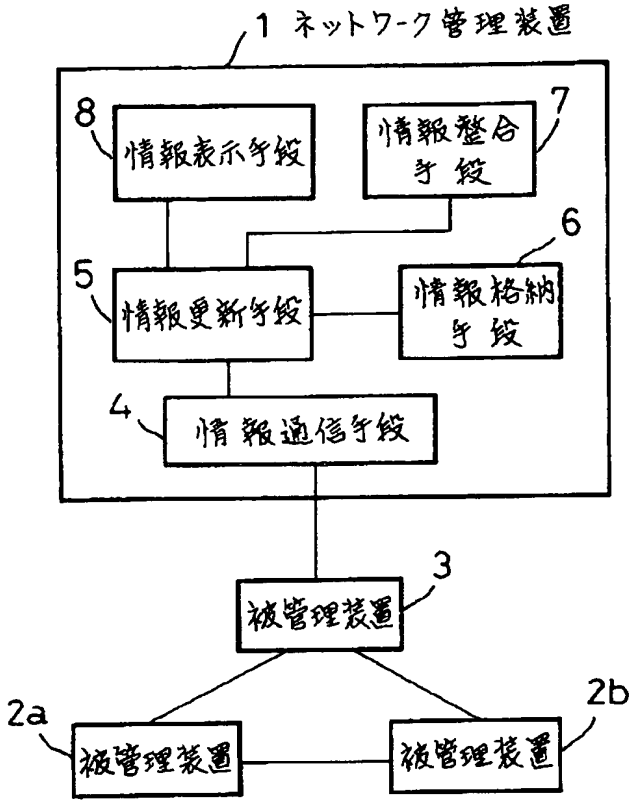
【符号の説明】

１…管理装置(ネットワーク管理装置)、　２a，２b，３…被管理装置、　４…情報通信手段、　５…情報更新手段、　６…情報格納手段、　７…情報整合手段、８…情報表示手段、　10…情報蓄積手段。

【図１】


1 ネットワーク管理装置
8
情報表示手段
情報整合手段
7
5
情報更新手段
情報格納手段
6
10
情報蓄積手段
4
情報通信手段
3
被管理装置
2a
2b
被管理装置
被管理装置

【図２】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情報格納手段
4
情報通信手段
3
被管理装置
2a
2b
被管理装置
被管理装置

PATENT ABSTRACTS OF JAPAN

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H04M 3/00

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(22)Date of filing : 06.12.1995

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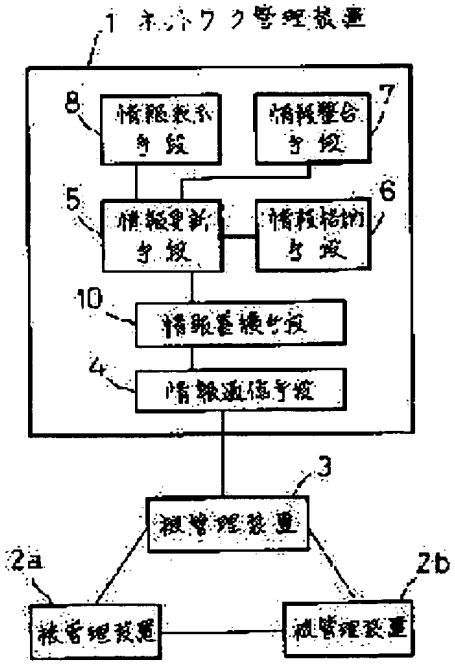
(72)Inventor : HANABUCHI YUUKO

(54) NETWORK MANAGEMENT EQUIPMENT

(57)Abstract:
PROBLEM TO BE SOLVED: To manage status information of managed equipments without missing status information of the managed equipment when the management equipment matches the status information of the managed equipments.
SOLUTION: Status information of managed equipments 2a, 2b, 3 is given to an information communication means 4 in the management equipment 1 and stored in an information storage means 6 via an information storage means 10 and an information update means 5 is used to update a display content of an information display means 8 and the management information in the information storage means 6. When the management equipment 1 is started and the communication among the managed equipment 2a, 2b, 3 is initialized, the status information is matched. An information matching means 7 reports start and end of matching processing and a managed equipment for the matching processing to the information storage means 10. The information matching means 7 reflects the current status information acquired from the managed equipment as the matching processing. All the status information from the start of the matching processing to the end is stored sequentially in the information storage means 10. After the end of matching processing, the stored status information is sequentially fed to the information update means 5 for update processing to reflect the stored status information on the update processing.



LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

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3.In the drawings, any words are not translated.

CLAIMS

[Claim(s)]
[Claim 1] Network administration equipment characterized by making it reflected while constituting the same network from two or more managed equipments, without having specified selectively as managed equipment of one representation in it, having connected with the managed equipment of said representation, having accumulated the information on the change of state from the managed equipment of said representation, and this information falling out.
[Claim 2] In the network administration equipment which specifies selectively as managed equipment of one representation in it, and is connected to the managed equipment of said representation while constituting the same network from two or more managed equipments The information means of communications which communicates status information with the managed equipment of said managed representation, An information storage means to accumulate said status information, and the renewal means of information which receives the status information of the various changes of state of said managed equipment, and updates management information, An information storing means to store said management information which consists of status information of said managed equipment, and configuration information, The information adjustment means which adjusts said management information stored in this information storing means, and actual status information, Network administration equipment characterized by making it make the status information which was equipped with an information-display means to display the various conditions of said managed equipment on a man machine interface, and was accumulated in said information storage means during adjustment processing of said information adjustment means reflect after adjustment processing termination.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to the network administration equipment which manages the information on the change of state of the managed equipment in the same network which consists of two or more managed equipments.
[0002]
[Description of the Prior Art] This conventional kind of network administration equipment aims at managing the whole network from one point, and is equipped with the function which detects and displays changes of state, such as fault information in a network. Drawing 2 is the block diagram showing the configuration of conventional network administration equipment. The network administration equipment with which 1 manages the information on a network change of state in drawing 2 R> 2 (It is hereafter called management equipment), 2a, the managed equipment with which 2b constitutes a network, the managed equipment to which, as for 3, management equipment 1 is connected, the information means of communications to which 4 performs the communication link with managed equipment 3, and 5 A renewal means of information to perform renewal of that while receiving the status information of the various changes of state of managed equipment, An information storing means to store the management information which 6 becomes from the status information and configuration information of managed equipment, an information adjustment means by which 7 performs adjustment with the management information of the information storing means 6 and the status information of actual managed equipment, and 8 are information-display means to display the various conditions of managed equipment.
[0003] When the case where a failure occurs in managed equipment 2a now is explained as an example, managed equipment 3 collects periodically the status information of managed equipment 2a and 2b for every ****** equipment, and since the collected status information is sent to management equipment 1 in order, the status information which shows that the condition of managed equipment 2a changed will be sent to management equipment 1. At this time, the status information of managed equipment 3 self is also sent to management equipment 1. With management equipment 1, it is sent to the renewal means 5 of information in response to this status information by the information means of communications 4 in management equipment 1. The renewal means 5 of information sends the information on a change of state to the information-display means 8, after updating the management information of the information storing means 6. The information-display means 8 performs actuation which updates the content of a display on a man machine interface according to the information on the sent change of state. A network change of state is reflected in management equipment 1 by this.
[0004] moreover, at the time of communication link initialization between the time of starting of management equipment 1, management equipment 1 and managed equipment 3 and management equipment 1, managed equipment 2a, and 2b In order to adjust status information of the management information of the information storing means 6, managed equipment 3 or managed equipment 2a, and 2b, the collection actuation of status information which managed equipment 3 performs to managed equipment 2a and 2b from the information adjustment means 7 periodically to managed equipment 3 is stopped. After the information adjustment means 7 acquires the current status information of managed equipment 3 or managed equipment 2a, and 2b, adjustment processing is completed and status information is reflected, actuation of periodical information gathering of managed equipment 3 is made to start from the information adjustment means 7 again.

[0005] It operates so that a network change of state may be reflected on the basis of the management information which management equipment 1 was adjusted by the information adjustment means 7, and was stored in the information storing means 6 in managed equipment 3 or managed equipment 2a, and the status information from 2b.
[0006]
[Problem(s) to be Solved by the Invention] However, in management equipment, the problem that where of it cannot send was in the status information of managed equipment until it stopped the periodical information gathering which managed equipment performs in case such the network-administration equipment of a configuration adjusts the status information of the managed equipment to which management equipment was connected, or other managed equipments which constitute a network, adjustment processing was completed and it started acquisition of status information.
[0007] This invention aims at offering outstanding network administration equipment manageable [with management equipment], without the status information of managed equipment falling out, in case the trouble of said conventional technique is solved and management equipment adjusts status information of managed equipment.
[0008]
[Means for Solving the Problem] In order to attain this object, the network administration equipment concerning this invention The information means of communications which communicates status information between the managed equipment of the managed representation, An information storage means to accumulate status information, and the renewal means of information which receives the status information of the various changes of state of managed equipment, and updates management information, An information storing means to store the management information which consists of status information of managed equipment, and configuration information, It constitutes from an information adjustment means which adjusts management information stored in the information storing means, and actual status information, and an information-display means to display the various conditions of managed equipment on a man machine interface.
[0009] Delivery and management information update to the renewal means of information in order in the status information which an information adjustment means notified the managed equipment of that and an adjustment processing object at the time of initiation of adjustment processing, and termination, accumulated all the status information of the managed equipment of an adjustment processing object during adjustment processing with an information-storage means to an information-storage means, and accumulated after adjustment processing termination, and, according to said configuration, it sends to an information-display means further.
[0010]
[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained to a detail with reference to a drawing. Drawing 1 is the block diagram showing the configuration of the network administration equipment in the gestalt of 1 operation of this invention. Moreover, the same sign is given to the thing of the same operation effectiveness explained by drawing 2 of the conventional example. In drawing 1 , as for 1, management equipment (network administration equipment), 2a, 2b, and 3 are managed equipment, respectively, 3 is management equipment of representation and especially 4 is information means of communications and an information storage means by which in the renewal means of information, and 6 an information adjustment means and 8 accumulate an information-display means, and, as for 10, an information storing means and 7 accumulate [5] the status information from the information means of communications 4.
[0011] Next, in the gestalt of the implementation constituted as mentioned above, first, when a failure occurs by any [managed equipment 2a, 2b, and] of 3 they are, the status information is collected by the managed equipment 3 of representation like the conventional example, and is sent to the information means of communications 4 in management equipment 1. The information means of communications 4 sends this to the information storage means 10. The information storage means 10 sends the status information sent from the information means of communications 4 to the renewal means 5 of information as it is as usual actuation. After the renewal means 5 of information updates the management information of the information storing means 6 from status information, delivery and the information-display means 8 perform actuation which updates the content of a display on a man machine interface according to the information on a change of state that the information on a change of state was sent to the information-display means 8. A network change of state is reflected in management equipment 1 by this.

[0012] Moreover, in order it adjusts the status information of the managed equipment 3 of the management information of an information storing means 6, and representation or managed equipment 2a, and 2b at the time of communication link initialization between the time of starting of management equipment 1, management equipment 1 and the managed equipment 3 of representation and management equipment 1, managed equipment 2a, and 2b, the managed equipment which should perform adjustment processing from an information adjustment means 7 to an information-storage means 10 after this notifies. After the information adjustment means 7 acquires the current status information of the managed equipment which should perform adjustment processing and makes status information reflect through the renewal means 5 of information, it notifies that adjustment processing of the managed equipment notified to the information storage means 10 last time was completed. Furthermore, the information-display means 8 updates a display according to the management information after termination of this adjustment processing.
[0013] With the information storage means 10, the status information from the managed equipment set as the object of adjustment processing in the status information sent from the managed equipment 3 of representation is accumulated [no] in order, and delivery to the renewal means 5 of information is performed after initiation of adjustment processing of managed equipment is notified until the adjustment processing is completed. And renewal of the management information of delivery and the information storing means 6 and renewal of the information-display means 8 are performed for the status information which held the advice of termination of the adjustment processing from the information adjustment means 7 after the carrier beam to the renewal means 5 of information in order.
[0014] If the status information generated before and behind that is made to reflect in order to the status information under adjustment processing even if the current status information of managed equipment changes to which timing during adjustment processing, the status information managed within management equipment 1 after reflection is completed, and the status information of actual managed equipment will become equal.
[0015] Thus, by according to the gestalt of said operation, preparing the function to hold the status information from managed equipment, in management equipment 1, and operating the information storage means 10 during adjustment processing of the status information of the managed equipment in management equipment 1 In case one management equipment performs adjustment processing, it can manage correctly, without the status information under adjustment processing from managed equipment falling out, and the conformity of the status information which management equipment 1 manages, and the status information of actual managed equipment can be maintained.
[0016]
[Effect of the Invention] The effectiveness that the conformity of the status information of management equipment and managed equipment both can be maintained is done so, without the status information of the managed equipment generated during adjustment processing falling out according to this invention, in case adjustment processing of the status information of management equipment and managed equipment is performed as explained above.

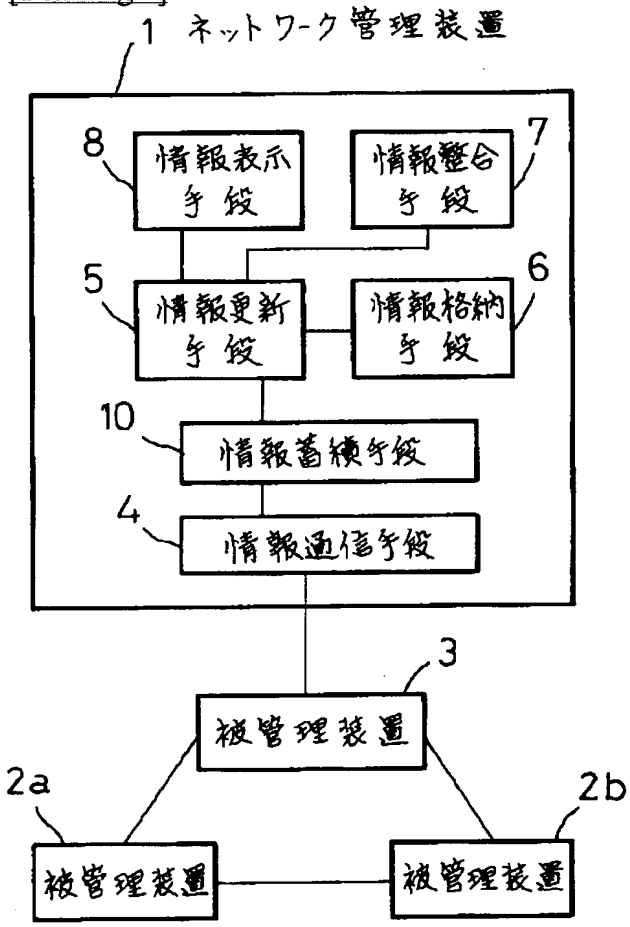
[Translation done.]

* NOTICES *

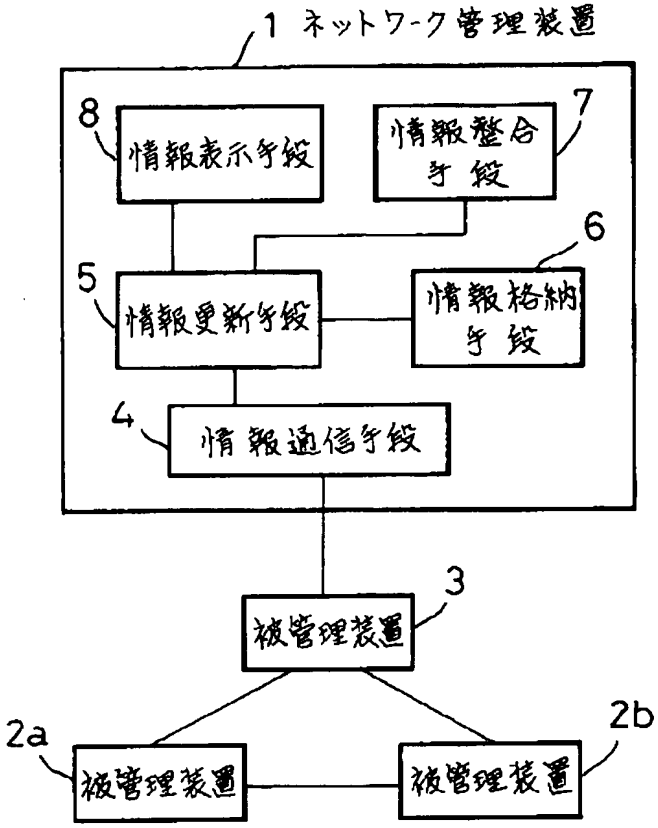
1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DRAWINGS

[Drawing 1]



[Drawing 2]



[Translation done.]